

Nov. 24, 1931.

H. A. BEILGARD

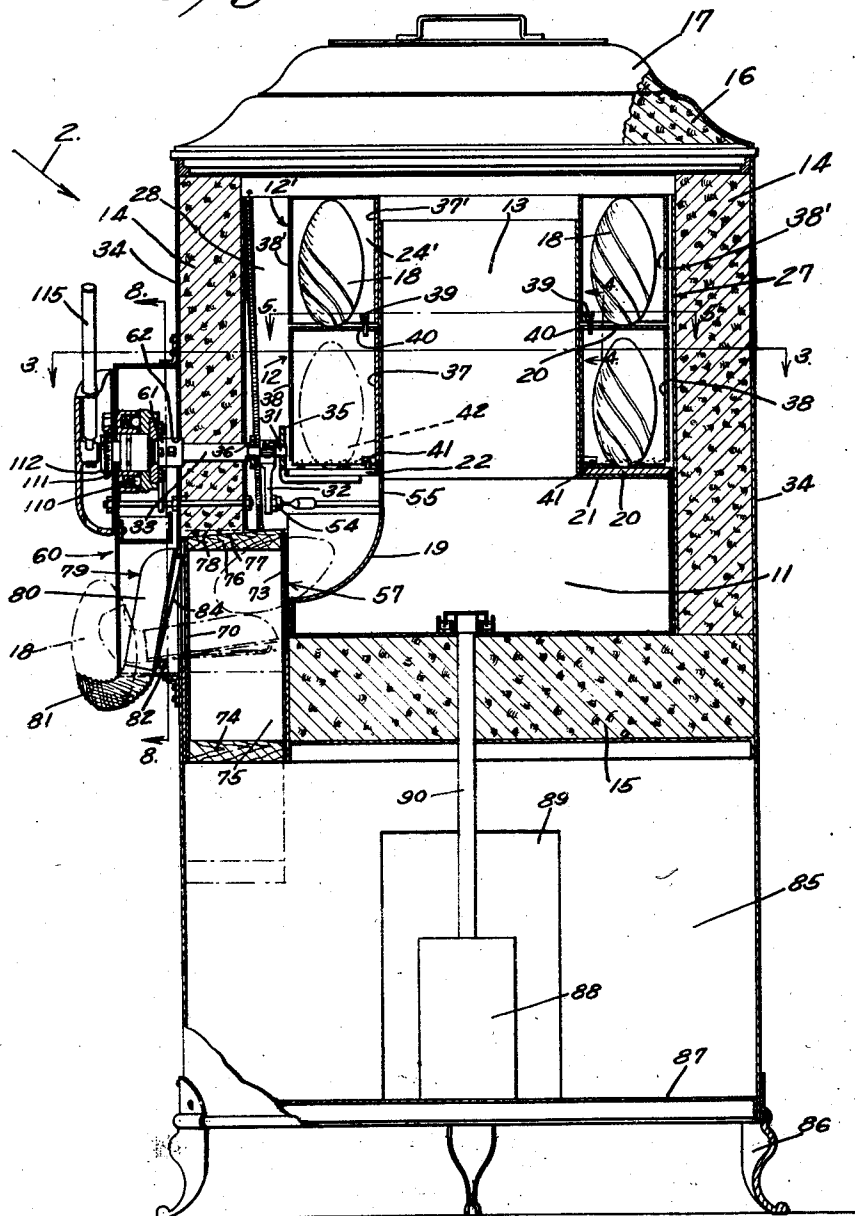
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ICE CREAM VENDING MACHINE

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4 Sheets-Sheet 1

Fig. 1.



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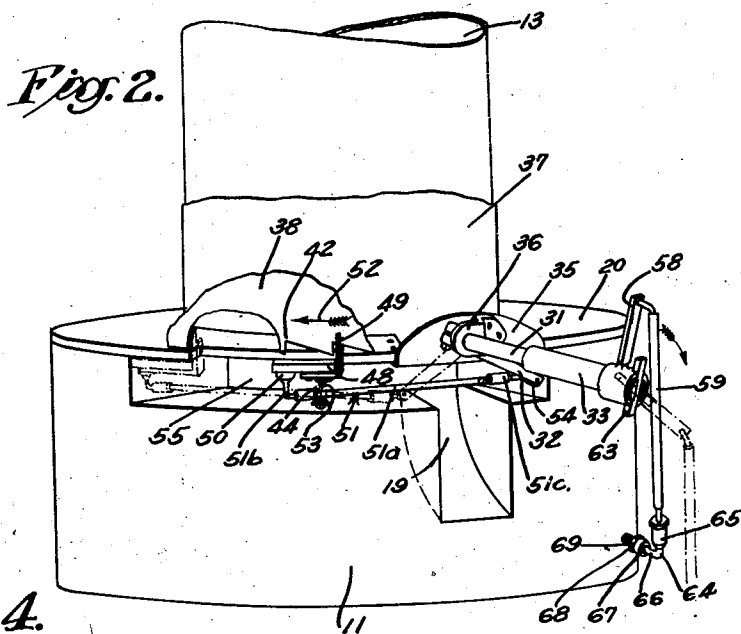


Fig. 4.

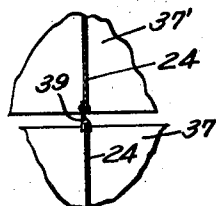
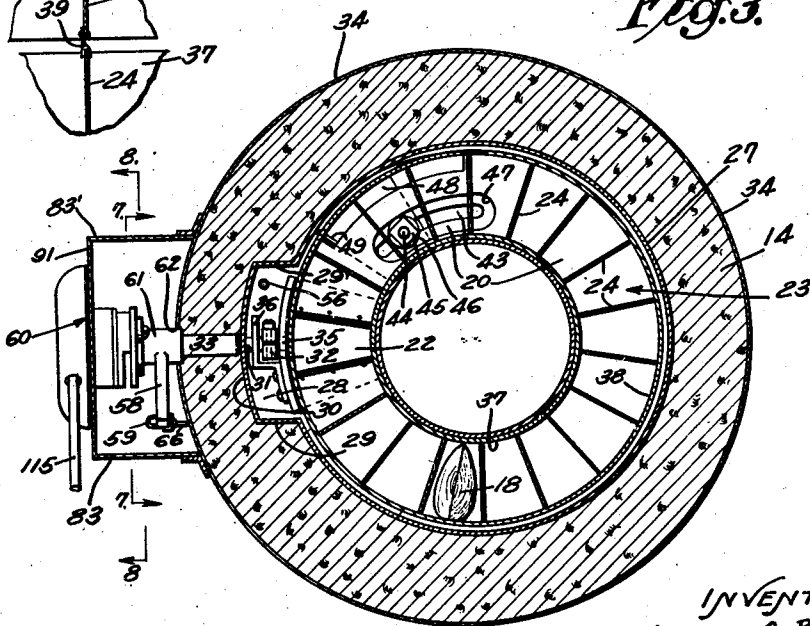


Fig. 3.



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Fig. 5.

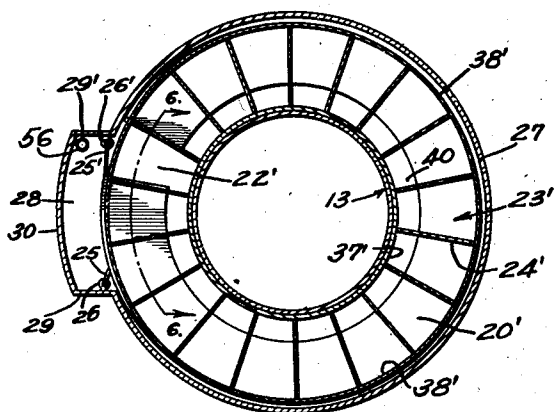


Fig. 6.

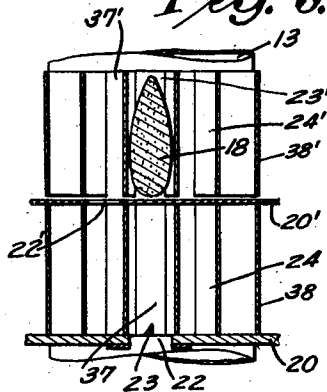
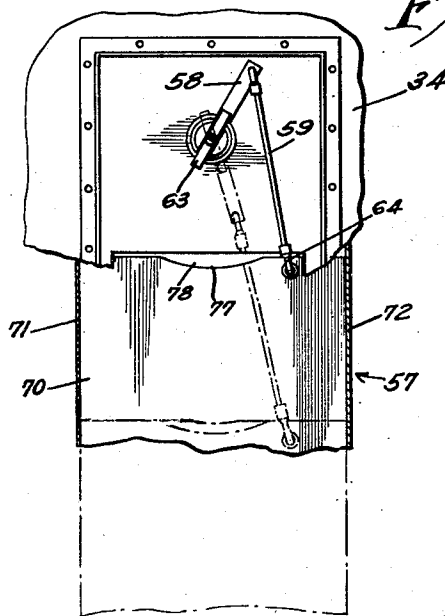


Fig. 7.



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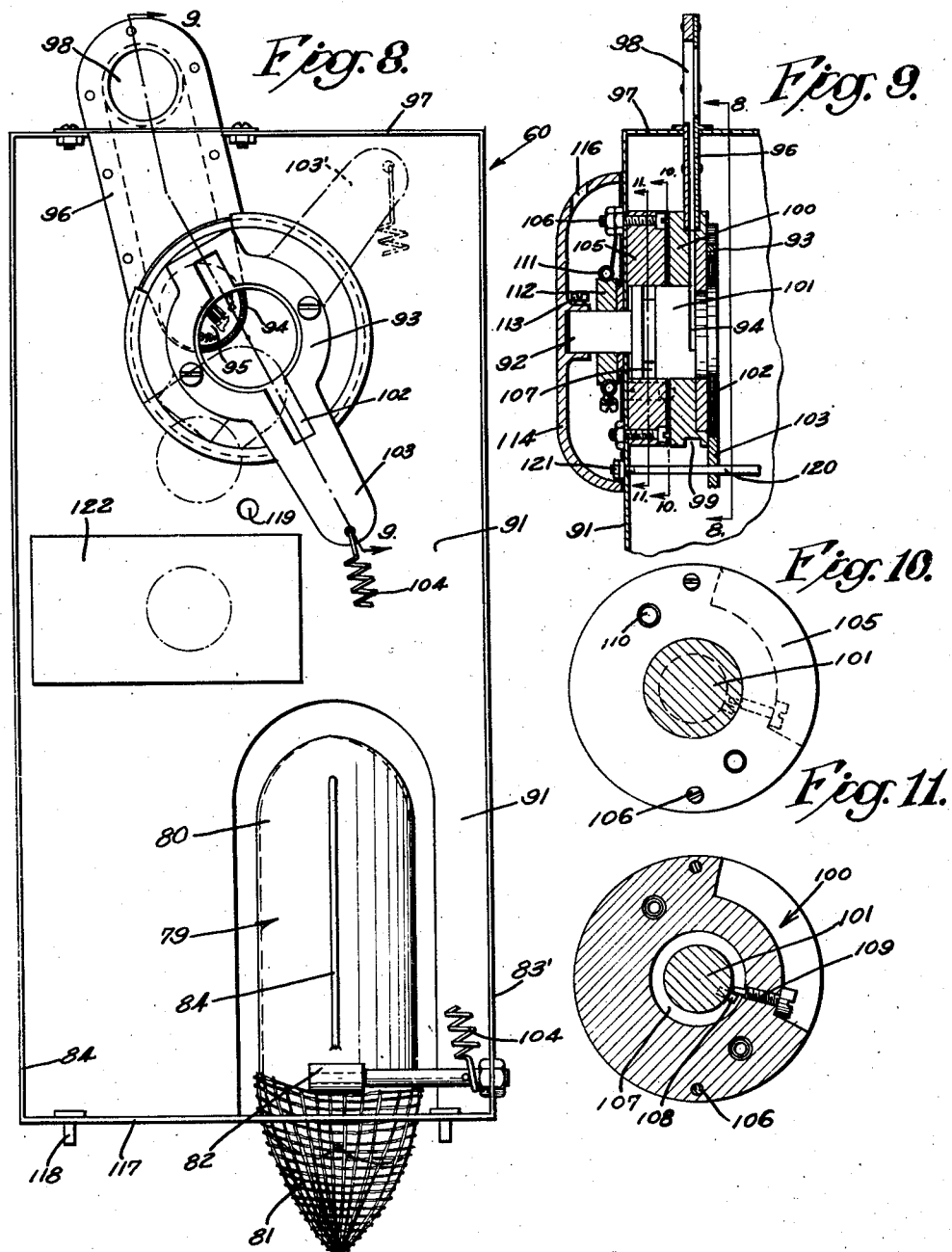
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4 Sheets-Sheet 4



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ICE CREAM VENDING MACHINE

Application filed May 3, 1926. Serial No. 106,296.

Although the above title is indicative of one important intended use of my present invention, it should be understood that this invention relates generally to the storage and handling of articles such as chilled food units, and to the units themselves, these units being novel in structure and designed, in form, weight and composition, to be stored and handled in the unique manner hereinafter described.

It is an object of this invention to provide a vending machine comprising a drum which includes compartments radially and/or annularly arranged,—each compartment being adapted to receive a rounded food unit of the special shape hereinafter described; and, in preferred embodiments of my invention, the mentioned compartments may be disposed in superimposed tiers and may be provided with means whereby lower compartments, although the articles therein are never subjected to compressive weight of articles in upper tiers, may be automatically refilled from said upper tiers.

It is an object of this invention to provide a machine for vending chilled food units or articles with an efficient cooling system and with means obviating the use of any pivoted door for the delivery of such articles.

It is an object of this invention to provide a vending machine with means whereby the rocking of a single shaft, as may be rendered possible by the insertion of a coin serving as a key, is effective to impart step-by-step rotative advance to an article-carrying drum, and is also effective to reciprocate a vertically slidable outlet closure; and in preferred embodiments of my invention, the mentioned outlet member being double walled and the mentioned drum being provided with a stationary floor having an aperture beneath one of a series of peripheral compartments, I may use not only an inclined means or stationary chute, upwardly terminating beneath the mentioned aperture (and leading therefrom toward an outlet through an insulated wall) but also a tiltable article-receiving member whose movements are dependent upon the movements of said slidable outlet

closure member and/or upon the reception of an article through said outlet.

It is an object of this invention to provide a vending machine with a substantially tight outlet closure that is fool-proof and is inaccessible to tampering and with a tiltable receptacular element which is automatically movable between an inner and article-receiving position (in which it may extend through an insulated wall several inches in thickness) and a outer, article-retaining position,—the latter position and the operation of this and related parts to be such as to permit a double walled closure member promptly to return to an upper or closed position even though the delivered article be not promptly removed from said receptacular element; and, in preferred embodiments of my invention, this receptacular element may be pivotally secured within a removable housing for a coin-controlled mechanism and may normally occupy such a position as practically to constitute it an obstruction or lock preventing the insertion of a hand or a tool for the purpose of moving the slidable closure or for the purpose of removing contained food units, or the like.

It is an object of this invention to provide, at the outlet of the vending machine, an overbalancing receptacular member which is adapted to serve, when empty, as a slide or subsidiary chute, and is also adapted to serve, whenever it has received an article of such weight as to initiate a tilting movement, to hold the article in an external and readily accessible position,—said member being also subsequently serviceable, as above mentioned, to obstruct or prevent tampering; and, in preferred embodiments of my invention, the dimensions and angular relationships and curvatures of parts and passages, and also the structure and operation of an article-carrying drum and/or associated parts, may be such as at the same time to facilitate cooling, to prevent or minimize thermal exchange, and to defeat all efforts at pilfering.

It is an object of my invention to provide a vending machine having no constantly-open delivery passage through which warm air

might enter and one whose operating parts are of simple type and interiorly disposed; and preferred embodiments of my invention may comprise a central compartment for cooling means and a peripheral space for insulating means, annular article-carrying drums being interposed between said cooling means and said insulating means but provided with fixed floors,—one or more of the latter being preferably disposed directly above a portion of said cooling compartment or means.

It is a further object of this invention to provide a coin-controlled vending machine with novel ratchet means for advancing articles, preferably in separate compartments, toward a point of delivery,—some of said compartments being disposed above a stationary apertured floor or plate which is efficiently cooled and is associated with a chute for the downward delivery of chilled food units through a double wall or insulating space; and, in preferred embodiments of my invention, a movement by which an article is delivered into said chute is incidentally effective to depress a double walled or insulating slidable closure sufficiently to permit the projection of a food unit through the resultant opening and into a tiltable receptacular element pivoted externally thereof.

It is also an object of my invention to provide a readily removable coin-controlled mechanism suitable for use in connection with the parts above mentioned,—this coin-controlled mechanism preferably comprising means whereby an inserted coin is effective, as a key, to compel an interior shaft to rotate with an exterior and manually manipulatable shaft, disposed coaxially therewith.

Summarizing the above, it may be stated that it is an object of my invention to provide a simple, rugged, efficient, economically (heated or) cooled, suitably insulated, air tight, fool-proof, tamper-proof, reliable and inexpensive vending machine, suitable for use in the storage and delivery of food units,—such as food units comprising ice cream, or the like.

Other objects of my invention may be best appreciated from the following description of an illustrative embodiment thereof, taken in connection with the appended claims and the accompanying drawings, in which

Fig. 1 is, for the most part, a substantially central vertical section, with parts broken away.

Fig. 2 is a perspective view, taken from the general direction indicated by the arrow 2 of Fig. 1, but showing only certain interior parts and operating means as hereinafter described.

Fig. 3 is a horizontal section, taken substantially as indicated by the line 3—3 of Fig. 1.

Fig. 4 is a section taken substantially as indicated by the line 4—4 of Fig. 1.

Fig. 5 is a horizontal section taken substantially as indicated by the line 5—5 of Fig. 1.

Fig. 6 is a vertical section, taken substantially as indicated by the line 6—6 of Fig. 5, but slightly enlarged,—this view being intended primarily to indicate relationships between apertured floors or plates, supporting superimposed tiers of food units, and radial partitions of a rotatable drum.

Fig. 7 is a detail view showing a preferred type of outlet closure-operating mechanism,—this view being taken substantially as indicated by the line 7—7 of Fig. 3.

Fig. 8 is a vertical sectional detail view, comparable with Fig. 7, but on an enlarged scale and taken from an opposite direction,—substantially as indicated by the lines 8—8 of Figs. 1, 3 and 9.

Fig. 9 is a section in a broken plane, substantially as indicated by the line 9—9 of Fig. 8.

Figs. 10 and 11 are respectively vertical sectional detail views, taken substantially as indicated by the lines 10—10 and 11—11 of Fig. 9.

Referring to the details of that specific embodiment of my invention chosen for purposes of illustration, 11 may be referred to as a central cooling chamber,—this chamber being adapted to contain ice or chemical or mechanical cooling means, or any preferred cooling (or heating) agent or organization, and being surrounded by an annular drum or drums 12, 12', occupying an intermediate space between an upper and constricted portion 13 of the cooling chamber 11 and an external insulating space 14. Insulation of any preferred character may be provided not only within the annular space 14, but therebelow, as in a transverse space 15, and thereabove, as within a space 16 provided interiorly of a removable cap 17,—the lifting of this cap being sufficient to provide access both to the mentioned drums 12, 12' and to the central refrigerating compartment 11.

In order to provide for the delivery of food units, such as rounded units 18, successively through a delivery opening or passage at the lower end of an inclined chute 19, or its equivalent, I may provide, beneath the drums 12 and/or 12' (any desired number of drums being similarly superimposed) apertured and stationary horizontal floors or plates 20, 20',—the lowest of these plates being identical with or directly above and in contact with a horizontal plate 21, comprised in the cooling compartment 11. Assuming the plate 20, to be provided with a single suitable opening, as at 22, immediately above the chute 19, it will be obvious that a step-by-step rotation of the drum 12, must be effective to deliver successive food articles 18, or the like, into the chute 19; and by providing the upper plate or floor 20', beneath

the drum 12', in turn with a laterally offset single aperture 22, (see Fig. 6) I make sure that as soon as any one of a series of radial compartments 23, bounded by radial walls 24 of drums 12, is emptied by the delivery of a food unit through the passage 22, replenishment is effected by the subsequent descent of a food unit from an upper compartment 23' (the upper compartments being shown as similarly bounded by radial partitions 24') through the opening 22', and the plates or floors 20, 20' may respectively be held stationary during the rotation of the drums 12, 12' by any suitable means, as by direct attachment (in the case of the floor or plate 12) to a vertical wall or to the plate 21 of the cooling compartment 11, and/or by means such as hooks or projections 25, 25' entering corresponding apertures or eyes 26, 26'. The former may be connected (as by welding) with the floor or plate 20' and the latter may be integrally or otherwise connected with some fixed element, as the wall 27 which serves inwardly to define the insulating space 14 and incidentally to define an annular drum space, extending to the constricted portion 13 of the cooling compartment 11.

The mentioned drum space, containing the drum or drums 12, 12', is shown as provided with a forward extension 28, defined by flat sections 29, 29' and a rounded section 30, and as providing not only for the support of eyes 26, 26', cooperating with hooks 25, 25' by which the plate 20' is held stationary, but also for the housing of certain resilient or movable parts,—including the inner end of shaft 31 and a part of an arm 32, rigidly secured on said shaft and suitable for use in imparting, by any appropriate intermediate mechanism, a step-by-step rotation to the mentioned drums. For example, the shaft 31, shown as comprising an enlarged portion 33 which extends through the insulating space 14 (defined by the mentioned inner wall 27 and an outer wall 34) may be supported by means such as bracket bearings 35 and 36,—the former of these being shown (see Fig. 2) as supported from the floor or plate 20 and the latter as supported from the former.

The drums 12, 12' may comprise not only inner cylindrical wall elements 37, 37' in addition to the mentioned radial plates 24, 24', but also outer cylindrical members 38, 38',—the mentioned cylindrical members being rigidly secured to those radial partitioning members which lie in the same horizontal planes therewith, and the upper drum (or drums) 12' being compelled to rotate with the lowermost drum 12 by any suitable means, as by the use of interconnecting fingers or clips 39. These are shown (see Figs. 1 and 4) as extending through an annular space 40 in the floor 20' and as permitting the up-

per drum or drums to be removed, at will, independently of the lowermost drum 12. In order to assure comparative freedom of rotative motion, the latter may be supported from the fixed floor 20, in any suitable way, as by means comprising rollers 41; and in order to facilitate the imparting of the step-by-step rotative advance to the drum, the lower edge of the outer wall 38 thereof may be notched, as best shown at 42, Fig. 2, for engagement by any suitable ratchet device operable by means such as the mentioned arm 32 upon the shaft 31.

As best shown in Figs. 2 and 3, I may provide, in the floor or plate 20, an arcuate slot 43, attaching therebelow, as by means of a bolt 44 (optionally secured by a nut 45 having a washer 46, movable in a depression 47) a dog carrier 48,—this dog carrier being either resiliently movable on the bolt 44, or provided with a resilient dog or detent 49, and provided also with a means, such as a spherical socket 50, for the pivotal connection of a straight or bent and unitary or composite rod 51 therewith—one end of this rod being in turn secured to or otherwise movable by the mentioned arm 32 upon the shaft 31.

In order to permit the dog 49, which is intended to rotate the drum 12, comprising outer cylindrical element 38, in the direction of the arrow 52, this dog or the carrier 48 may be constantly and resiliently pressed upward by means such as a spring 53, upon the bolt 44,—this construction permitting the entire carrier to yield downwardly during the return or opposite movement of the dog 49; and, since the arm 42 must rotate in a plane at right angles to the shaft 31, whereas the carrier 48 is required to reciprocate in a horizontal plane and in conformity with the curvature of the slot 43, I may form the rod 51, of a central section 51a and end sections 51b and 51c, which may or may not be capable of rotation relatively thereto; and I may secure the remote ends of the sections 51b and 51c respectively to the carrier 48, and to the arm 32, by means such as ball-and-socket joints comprising respectively the mentioned socket 50 and a somewhat similar socket 54, secured to the arm 32, (see Fig. 2); and I may also provide the shaft 31, carrying this arm, with any preferred means for incidentally imparting vertical movement to an outlet closure element disposed opposite the lower end of the chute 19.

The cooling chamber 11 is shown in Figs. 1 and 2 as provided with an in-set wall 55 which may be in the same cylindrical plane with the upper end of the chute 19, to provide space for the mentioned rotatable or reciprocable parts by which the drum 12 (and any drum or drums superimposed thereon) may be rotated, and space within the mentioned extension or chamber 28, provided

in front of the said drum or drums, may advantageously be utilized to provide suitable means, such as a spring or springs 56 (see Figs. 1, 3 and 5) tending normally to hold a slidable closure, such as a double walled and vertically movable element 57 (see Figs. 1 and 7) in an elevated position.

I prefer to impart opening movements to this closure element, by means such as an arm 58 and a rod or link 59 (see Figs. 2, 3 and 7) within a coin-control housing 60, partly or entirely external to the mentioned cylindrical outer walls 34. The arm 56 may, in this case, be carried by an enlargement 61 integrally or otherwise rigidly secured upon the outer end of the shaft 31—33; and it may be rotatable within an aperture 62, provided in the wall 34, by any suitable means,—as by a clutch or coupling element in the form of a transverse pin 63, adapted to be received within a cooperating slot in a coaxial shaft or other suitable member, which may be comprised in a coin-controlled mechanism of any suitable character,—my preferred coin-controlled mechanism being illustrated in Figs. 8, 9, 10 and 11.

The lower end of the rod 59, mentioned as adapted to impart downward movement to the slidable closure 57 (in opposition to the tendency of spring or springs 56) may be secured to the said outlet closure in any suitable way, as by means comprising a bent or angle element 64, comprising both a section 65, which is coaxially disposed but may or may not be rotatable relatively to the rod 59, and a horizontal or inclined section 66, terminating in a spherical or other head 67, adapted to be retained within a cooperating socket element 68,—the latter being, in turn, secured to the closure element 57, as by the engagement of a threaded member 69, integral with said socket member, in an outer or front plate 70 (see Figs. 1 and 7) of said closure member.

The closure member 57, slidable and closely interfitting between lateral walls 71 and 72, which may be integral with the outer cylindrical wall 34 and/or with the inner cylindrical wall 27 defining the insulating space 14, may comprise (in addition to the mentioned front plate 70 and a parallel inner plate 73) a bottom member 74, side walls 75, and a top wall 76; and the latter element may be provided, as in the center of the top thereof, with an inclined depression 77; extending in a radial plane with reference to the center of the cooling chamber 11, or its equivalent.

This depression may be filled, when the closure member 57 is in this upper or closed position, by a correspondingly curved and inclined downwardly extending stationary member 78,—which may, if desired, be supported by or formed of an insulating composition, filling some or all of the mentioned insulating spaces.

The inclined depression 77 is so formed and positioned as to cooperate with an article-receiving member such as a curved and pivoted receptacular element 79, shown best in Fig. 1. This element may advantageously comprise an imperforate channel-shaped section 80, having rigidly connected therewith a section 81, formed of a reticulated or pervious material; and the entire receptacular organization may advantageously be supported by means such as a horizontal pivot 82 extending through at least one of the substantially vertical walls 83, 83' of the mentioned housing 60 of a coin-controlled device of some preferred type.

It is important that the balance or connections of the respective sections or parts of the described receptacular element, be such that, as the closure element 57, is lowered, by the described means or by alternative means of any preferred character, the said receptacular element shall tip inwardly into a position such as that in which it is shown in dotted lines in Fig. 1; and the mass of this receptacular element is intended to be so related to the mass of the food units, to be received thereby that, in view of the momentum which the latter may acquire in descending through the chute 19, said receptacular element shall automatically tilt from the indicated inner position (in which it fits within the mentioned depression 77 in the upper end of the slidable closure 57) to an outer or upright position such as that in which said receptacular element is shown in Fig. 1.

During the relative movements just referred to, the freedom of motion of the slidable closure 57, may be assured by the provision of a longitudinal guide element 84 upon the lower or inner surface of the upper or inner section 80 of the described receptacular element; and it will be obvious that the described movements of the last-mentioned element are such as to enable the slidable closure promptly and automatically to close, and such as to assure the safe retention of the frozen food unit, or other article 18, in an external position, until the same may be manually removed.

It will be obvious that the described parts might be supported in any one of a great variety of ways, as by a base section 85, provided with legs or feet 86 and optionally with means, such as a platform 27, for the support of a receptacle 88,—this optional element being shown as insertable and removable through a door 89 and as so positioned as to receive any drip from a trapped drain pipe 90; but, as intimated above, it should not be supposed that the form and mass of the food units 18, or other articles to be similarly stowed and delivered, is a matter of indifference.

It is true that by giving articles or enclosures the desired external configuration

and weight (as by providing a two-part and comparatively heavy case of a predetermined type, for use in enclosing light articles) the described mechanism may be used in vending a great variety of articles; and true also that the interior compartment 11, when provided, may be used to contain either heating or cooling or other treating means, but, in any case, I prefer to provide vendable units whose form adapts them to be separately stored upon end, within compartments of the general character described, and to be reliably delivered therefrom in the indicated manner. For example, I may provide food units comprising unitary or two-part shells filled with ice cream of such density as to give the desired total mass; and said shells may be so formed as to present different but invariably ovoidal outlines, according as they may be viewed in side elevation (as in Fig. 1) in edge elevation (as in Fig. 6) or in top plan (as in Figs. 3 and 5)—the three dimensions or axes of each unit being different each from the other, and only the longest axis (vertical) of each unit being in a plane of symmetry (radial with reference to the axis of rotation of the drum 12, 12'). This described shape, the thickest part of each article being adapted loosely to interfit within a wide outer part of a compartment having radial walls—is especially suitable to the economical stowage of a large number of units and to the downward and inward delivery of the same, under gravity, through an inclined chute and into a tiltable receptacular element constructed, secured and movable in the general manner described; and it may be noted that the shortest axis of a body 18, as shown, lies at right angles to the mentioned plane of symmetry, but nevertheless includes neither of the axes which lie in said plane,—the center of mass of the article, assuming its substantial homogeneity being in fact below and downward from its geometrical center, as the article is retained within a compartment of my drum. This shape is favorable not only to storage and delivery in the indicated manner but to easy grasping of the article so that it may be eaten from the hand, like an article of fruit or confection; and it would in fact be within the intended scope of my invention to dispense buns, sandwiches, fruits or confections, or similar articles in the general manner described; but my means for imparting a rocking movement to shafts 31, 32 and associated parts may be of any preferred character and may be associated with a coin-control of any desired type,—preferably disposed within and protected by the mentioned housing 60.

In addition to side walls 83, 83', mentioned above, the housing 60 (presumably formed, like most parts of my described organization, from sheet metal) may comprise a front wall 91; and this wall, or parts secured thereto

may provide bearings for a short operating shaft 92, disposed coaxially with the mentioned shafts 31—33—61,—said shafts being shown in Fig. 2 as terminating in a male clutch element 63 and the operating shaft 92 being provided with (but not keyed to) a cooperating clutch element 93, slotted to interfit with the mentioned pin 63 whenever the housing 60 is secured in the position in which it is shown in Fig. 1.

The shaft 92 is shown in Figs. 8 and 9 as normally disposed below a transversely extending indentation or slot 94, adapted to receive and exactly to interfit with a coin 95 (as, for example, a dime) this coin being insertable through, for example, a receiving slot or coin guide 96, projecting through the top of housing 60 and externally provided with a coin-receiving opening 98, of a known type; and the coin guide 96 may downwardly terminate within a peripheral channel 99 in a rotatable element 100, which surrounds an enlarged inner portion 101 of the shaft 92 and in turn carries not only the mentioned clutch element 93 (slotted at 102 to receive the pin 63 or an equivalent cooperating clutch element) but also an arm 103.

The arm 103 may be provided with resilient means, such as a spring 104 tending to hold the clutch member 93, and all parts rotatable therewith, in the positions in which the same are shown in Figs. 8 and 9, although permitting rotation of the same to the dotted line position shown in Fig. 8, with consequent actuation of all parts whose movement is dependent upon the rocking of the shafts 31—33—61.

To provide adequate support for the mentioned parts and to prevent their accidental displacement, the shaft 92, or its enlarged portion 101 may be carried by, for example, a bearing block 105, shown as retained in place by bolts 106; and the mentioned shaft enlargement 101 may be provided with means such as a peripheral slot 107, containing a stop 108, which is shown as cooperating with a screw 109,—this arrangement serving both to limit the relative rotation of the shaft 92 and to prevent longitudinal displacement thereof. The shaft 92 may also be provided with means such as resiliently pressed balls or equivalent members 110 (see Fig. 1), releasably engageable within corresponding slight depressions in the relatively rotatable member 100, to steady the latter in one or both of the positions to which it may be rotated in the described manner, upon the insertion of a coin 95, to serve as a key in locking the rotatable member 100 to the shaft 94; and the shaft 92 may also be provided with internal or external means, as a spring 111, shown as engaging a circular element 112 rigidly secured thereon, to return the shaft 92 to the coin-receiving position in which it is shown in Figs. 8 and 9.

It will be obvious that the described construction is such that unless a suitable coin is inserted in the indicated manner, the shaft 92, may be independently rocked by manipulation of a handle upon its external end, without any useful effect. In preference to providing a handle of more usual type, I prefer to secure to the shaft 92, as by means of a set screw 113, manually engageable means comprising a bell-shaped member 114 (preferably provided with a radially extending handle 115, especially designed to conceal and protect mentioned parts of the described coin-control, or attaching means therefor; and, if desired, the concave or bell-shaped member 114, (shown as provided with an inconspicuous opening 116 through which a screw driver may be inserted for the adjustment of the set screw 113) may also extend over and protect attaching means for the entire housing 60 and all parts carried thereby.

I show the housing 60 as provided, at the inner edge of a bottom wall 117 (this wall and the front wall 91 being suitably apertured to permit the described pivotal movement of the receptacular element 81, or its equivalent) with downwardly projecting legs or pins 118, engageable within corresponding slots or openings provided therefor in the main outer wall 34, or in a member secured to this wall; and the front plate 91 of the housing 60 may be provided with an aperture 119, to receive the outer end of a bolt or projection 120, shown as secured to both the outer wall 34 and the inner wall 27, and as adapted to carry a retaining nut 121, or other securing and/or locking means,—preferably within and protected from tampering by the concave member 114.

At some point within the housing 60, as at 112, Fig. 8, I may secure a suitable coin box or a coin receptacle; and it will be understood from the foregoing description that, assuming a suitable cooling means to have been provided within the chamber 11, and suitable food articles 18 to have been introduced (as upon the removal of the described cover 17, into the compartments 23, (23'), upon the introduction of a suitable coin or coins into the slot 96 (and it is a merit of my described coin-control that it permits a plurality of coins to be so introduced that a corresponding plurality of articles may be subsequently obtained, even though reciprocation of the handle 115, be deferred until after all of said coins are inserted), a rotation of the clutch element 63, by the described handle or by equivalent means, is effective not only to advance the drum 12, sufficiently to deliver an article or articles into the chute, but also momentarily to depress the double walled slidable closure 57,—permitting the receptacular element 79, promptly to tilt inward, transversely of the separated walls 34 and 27, just in time to receive the chilled food article 18,

as the same leaves the chute 19; and the mass and momentum of such food article, may then tilt said receptacular element into its outer and upright position, enabling the slidable closure to close under the action of the mentioned spring 56.

The introduced coin is permitted to drop into the box 122, whenever the arm 103 reaches a position such as that in which it is shown in dotted lines (at 103') in Fig. 8; so that the shaft 92 is then no longer keyed to the clutch carrier 100. The delivered article 18 is thereafter removable from the receptacular element 81, at the convenience of the purchaser, and all parts are automatically shifted or restored, upon release of the handle 115, to former positions, in readiness for a subsequent series of like operations.

Although I have herein described but one complete embodiment of my invention, it should be understood not only that various features of my invention might be independently employed, but also that numerous alternative embodiments thereof might be devised, by those skilled in the art to which this case relates, without involving the slightest departure from the spirit and scope of my invention, as the same is indicated above and in the following claims.

I claim as my invention:

1. A vending machine comprising: an inner thermal chamber; an outer insulating member enclosing said chamber; article-carrying means therebetween; an opening through said insulating member adapted to permit the passage of articles from said article carrying means; a slidable closure for said opening; and a receptacular element pivoted exteriorly of said slidable closure, whereby the same is movable through said opening,—in response to movement of said slidable closure.

2. A vending machine comprising: a thermal chamber; insulating means enclosing said chamber; article-carrying means mounted between said chamber and said insulating means; an opening through said insulating means adapted to permit the passage of articles from said article-carrying means; a slidable closure for said opening; and a receptacular element pivoted exteriorly of said slidable closure and movable through said opening, said slidable closure being downwardly movable by manual means and returnable by automatic means,—said manual means comprising a shaft and means associated with said shaft to impart step-by-step advance to said article-carrying means upon oscillation of said shaft.

3. A vending machine comprising: a thermal chamber means; insulating means enclosing said chamber; article-carrying means mounted between said chamber and said insulating means; an opening through said insulating means adapted to permit the pas-

sage of articles from said article carrying means; a slidable closure for said opening; and a receptacular element pivoted exteriorly of said slidable closure and movable through
 5 said opening,—said slidable closure being downwardly movable by manual means and returnable by automatic means, said manual means comprising a shaft and means associated with said shaft to impart step-by-step
 10 advance to said article-carrying means upon oscillation of said shaft, and said step-by-step advance being effective to release successive articles, permitting the same to descend into said receptacular element during the intervals of depression of said closure element.

4. A vending machine comprising: a thermal chamber; insulating means enclosing said chamber; article-carrying means mounted between said chamber and said insulating
 20 means; an opening through said insulating means adapted to permit the passage of articles from said article carrying means; a slidable closure for said opening; a receptacular element pivoted exteriorly of said slidable
 25 closure and movable through said opening,—manual means for moving said slidable closure downwardly; and automatic means for effecting a return movement of said closure, said manual means comprising a shaft and means associated with said shaft to impart
 30 step-by-step advance to said article-carrying means upon oscillation of said shaft, and said step-by-step advance being effective to release successive articles, permitting the same to descend into said receptacular element during the intervals of depression of said closure element, and the depression of said closure element being incidentally effective to permit a tilting of said receptacular
 40 element through said opening, into a position adapting it to receive an article from a chute beneath said article-carrying means.

5. A vending machine comprising: a thermal chamber; insulating means enclosing said chamber; article-carrying means mounted between said chamber and said insulating
 45 means; an opening through said insulating means adapted to permit the passage of articles from said article carrying means; a slidable closure for said opening; and a receptacular element pivoted exteriorly of said slidable closure and movable through said opening, said slidable closure being downwardly movable by manual means and returnable by automatic means, said manual means comprising a shaft and means associated with said shaft to impart step-by-step
 50 advance to said article-receiving means upon oscillation of said shaft, and said step-by-step advance being effective to release successive articles, permitting the same to descend into said receptacular element during the intervals of depression of said closure element, and the depression of said closure element
 60 being incidentally effective to permit a tilt-

ing of said receptacular element through said openings, into a position adapting it to receive an article from a chute beneath said article-carrying means, said article-carrying
 70 means comprising a plurality of annular drums comprising radial partitions and removably positioned above apertured stationary floors,—the aperture in the lowest floor being directly above the mentioned chute, and an aperture in an upper floor being offset
 75 relatively to the aperture in the lowest floor.

6. A vending machine provided with stationary means for governing the temperature of the vended article; article-moving means movable relatively thereto; insulating means
 80 circumferentially disposed about said article-moving means; means for delivering articles through an opening in said insulating means and a pivoted receptacular element disposed externally of said insulating means and adapted to receive articles delivered there-
 85 through, said opening being provided with a slidable closure and said delivery means being mechanically interconnected with means for the opening of said slidable closure
 90 whereby the said receptacular element is tilted into an article receiving inner position.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 24th day of April, 1926.

HARVEY A. BEILGARD.

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